What Is Claimed Is:

1. A manufacturing method for an electron-emitting source of triode structure, comprising the steps of:

forming a cathode layer on a substrate;

forming a dielectric layer on the cathode layer, and positioning an opening in the dielectric layer to expose the cathode layer, wherein the opening has a surrounding region;

forming a gate layer on the dielectric layer, except on the surrounding region;

forming a hydrophilic layer in the opening;

forming a hydrophobic layer on the gate layer and the surrounding region, wherein the hydrophobic layer contacts the ends of the hydrophilic layer;

dispersing a carbon nanotube solution on the hydrophilic layer using ink jet printing; and

executing a thermal process step, and removing the hydrophobic layer.

2. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 1, wherein the substrate is made of glass.

3. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 1, wherein the cathode layer is composed of electric conductors.

4. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 3, wherein the electric conductor is silver.

5. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 1, wherein the gate layer is composed of electric conductors.

6. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 5, wherein the electric conductor is silver.

7. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 1, wherein the hydrophobic layer is composed of hydrophobic materials.

8. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 1, wherein the thermal process step is a sintering step.

9. A manufacturing method for an electron-emitting source of triode structure, comprising the steps of:

forming a cathode layer on a substrate;

forming a dielectric layer on the cathode layer, and positioning an opening in the dielectric layer to expose the cathode layer, wherein the opening has a surrounding region;

forming a gate layer on the dielectric layer, except on the surrounding region;

forming a sacrificial layer on the gate layer and the surrounding region, wherein the opening and the cathode layer are exposed;

dispersing a carbon nanotube solution in the opening using screen printing; and

executing a thermal process step, and removing the sacrificial layer.

10. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 9, wherein the substrate is made of glass.

11. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 9, wherein the cathode layer is composed of electric conductors.

12. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 11, wherein the electric conductor is silver.

13. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 9, wherein the gate layer is composed of electric conductors.

14. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 13, wherein the electric conductor is silver.

15. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 9, wherein the sacrificial layer is composed of photosensitive materials, hydrophilic materials, lipophilic materials, peelable materials, soluble materials, sinterable materials, or etchable materials.

16. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 9, wherein the thermal process step is sintering step.

17. A manufacturing method for an electron-emitting source of triode structure, comprising the steps of:

forming a cathode layer on a substrate;

forming a dielectric layer on the cathode layer, and positioning an opening in the dielectric layer to expose the cathode layer, wherein the opening has a surrounding region;

forming a gate layer on the dielectric layer, except on the surrounding region;

forming a carbon nanotube photoresist layer on the gate layer and covering the opening using spin coating, and patterning the carbon nanotubes photoresist layer in a predetermined pattern; and

executing a thermal process step.

18. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 17, wherein the substrate is made of glass.

19. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 17, wherein the cathode layer is composed of electric conductors.

20. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 19, wherein the electric conductor is silver.

21. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 17, wherein the gate layer is composed of electric conductors.

22. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 21, wherein the electric conductor is silver.

23. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 17, wherein the width of the predetermined pattern is smaller than the width of the opening.

24. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 17, wherein the thermal process step is an sintering step.

25. A manufacturing method for an electron-emitting source of triode structure, comprising the steps of:

forming a cathode layer on a substrate;

forming a dielectric layer on the cathode layer, and positioning an opening in the dielectric layer to expose the cathode layer, wherein the opening has a surrounding region;

forming a gate layer on the dielectric layer, except on the surrounding region;

forming a sacrificial layer on the gate layer and the surrounding region, wherein the opening is exposed;

forming an adhesive layer in the opening;

forming a carbon nanotube layer on the adhesive layer using a electrophoretic deposition step; and

executing a thermal process step, and removing the sacrificial layer.

26. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 25, wherein the substrate is made of glass.

27. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 25, wherein the cathode layer is composed of electric conductors.

28. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 27, wherein the electric conductor is silver.

29. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 25, wherein the gate layer is composed of electric conductors.

30. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 29, wherein the electric conductor is silver.

31. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 25, wherein the electrophoretic deposition step is cathode electrophoretic deposition, anode electrophoretic deposition, or suspensing electrophoretic deposition.

32. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 25, wherein the thermal process step is a sintering step.

33. The manufacturing method for an electron-emitting source of triode structure as claimed in claim 25, wherein the sacrificial layer is composed of one selected from photosensitive materials, hydrophilic materials, lipophilic materials, peelable materials, soluble materials, sinterable materials, or etchable materials.